

## PATENT ABSTRACTS OF JAPAN

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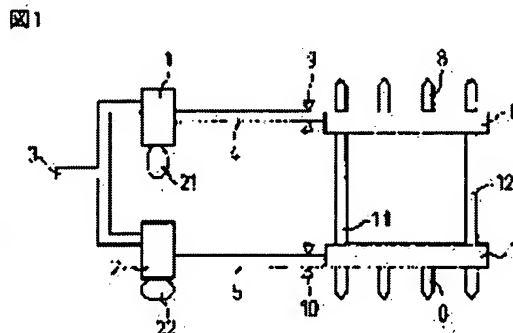
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## (54) FUEL INJECTION DEVICE FOR INTERNAL COMBUSTION ENGINE

## (57)Abstract:

PROBLEM TO BE SOLVED: To prevent variation in fuel injection amounts caused by synchronization of discharge pulsation of a fuel injection pump with resonance frequency of a fuel injection device in a multi-cylinder internal combustion engine like a V type.

SOLUTION: First and second high pressure pumps 1, 2 are connected to first and second delivery pipes 6, 7 through high pressure piping 4, 5 respectively. A plurality of fuel injection valves 8 corresponding to cylinders of the internal combustion engine are connected to the delivery pipes 6, 7. Two delivery pipes 6, 7 are connected each other with front and rear connection pipes 11, 12, and they form one large volume by forming a loop. The discharge pulsation of the high pressure pumps 1, 2 are not only absorbed by the large volume but also fuel pressure variation inside the delivery pipes 6, 7 is canceled to make small through the connection pipes 11, 12 since discharge timing of the high pressure pumps 1, 2 becomes an opposite phase each other when pump cams 21, 22 are set in an opposite phase each other.



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